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The taxidermist of the Victoria Museum at Jaffna, Ceylon, who died from the bite of a cobra which he presumed to be harmless, since its poison-bag was extracted, was for a while resuscitated by artificial respiration, and stated that while paralyzed by the poison he could see, hear, and feel everything, though utterly incapable of motion. Inflammation of the lungs caused his relapse and death.

Mr. G. A. Boulenger has discriminated two forms of Bombinator in Central Europe.

AVES.—Mr. Seebohm inclines to the assumption that the reason that the eggs of birds breeding in holes are white is that nature spares useless color, and he points out that there are traces of spots on the eggs of petrels and puffins, which breed in holes, a fact which tends to prove that it is only recently that they discontinued breeding in open places, like their relatives, the auks and gulls, which lay highly-colored eggs. He also points out that the females of pheasants and humming-birds, which breed in the open, are soberly colored, while the female kingfisher, who incubates concealed, is as gay as her mate.

MAMMALIA.—M. A. T. de Rochebrune has shown that the Colobi are platyrrhinous, like the apes of the New World.

C. W. de Vis has described as a probably new species of tree-kangaroo a specimen obtained in the Danitree River District. It is named *Dendrolagus bennettianus*, and is stated to be more nearly allied to *D. dorianus* than to *D. lumholtzi*.

EMBRYOLOGY.¹

The Development of the Carnivora.²—A. Fleischmann has lately carried out some interesting new investigations upon the development of the Carnivora, under the direction of Professor E. Selenka, in the Zoological Institute at Erlangen, on which he reports as follows:

Material was hard to obtain, in spite of the fact that cats and dogs are to be found as pets in every family. From one hundred to one hundred and fifty cats were examined weekly during the rutting periods in February and June. Later it was found possible to obtain materials from animals kept in confinement. Besides this, useful material was obtained through sportsmen from foxes and wild-cats.

A series of stages of the domestic cat was obtained by the successive extirpation of the horns of the uterus. The preservative fluid was picro-sulphuric acid, to which one-tenth per cent. of chromic acid had been added.

¹ Edited by Prof. JOHN A. RYDER, Biological Department, University of Pennsylvania, Philadelphia.

² Zur Entwicklungsgeschichte der Raubthiere, Biolog. Centralbl., vii., 1887, No. 1, pp. 9–12.

Fleischmann has not yet been able, in spite of great care and patience, to find the ova of the cat and dog in process of segmentation in the oviducts. The youngest ovum which he found was a somewhat oval blastosphere, upon which the germinal area was already very distinct. This was invested by a very distinct Rauber's layer of cells.

The youngest blastosphere of the cat was nearly spherical, and twelve days after the first copulation still presents the form of an oblong sphere. Through rapid growth at the poles it soon, however, becomes citron-shaped; the germinal area then forms a convex elevation on the middle third of the blastosphere.

While the blastosphere of the dog retains the two-pointed, citron-shaped form, that of the cat retains that form for only a very short time, and gradually becomes barrel-shaped, in that the points of the blastosphere are pressed inward by mutual pressure in the successive sections of the uterine cornua, so that the ends of the growing blastospheres are only feebly conical. The flattened extremities of the blastosphere are not undergrown by mesoderm, and therefore no vessels are developed in that portion of them. At the outer margins of the flattened ends of the barrel-shaped ovum there is a delicate reticulum formed of elevations of the ectoderm, which has apparently arisen by pressure of the ends of the hollow ovum upon the folds of the uterine mucous membrane.

Around the entire germinal area and at the opposite side of the blastosphere, on the twelfth day, there are already formed small projections and elevations of the ectoderm, which serve to attach the ovum to its nidus. Before the allantois has reached any considerable dimensions the subzonal membrane has thrust out villi in all directions, and into these grows the connective tissue supporting the outer vascular layer of the allantoic sac.

The primitive groove is formed in the germinal area at right angles to the long axis of the blastosphere; the same direction is assumed by the medullary groove. At about the sixteenth day the entire germinal area changes the direction of its axis to one parallel with that of the axis of the ovum, a condition which the embryo maintains until birth.

In the primitive streak the mesoderm is formed exclusively from the outer walls of the primitive groove; in many sections one sees the mesoderm proliferating outward from the sides of the primitive streak between the two primary embryonic layers, and numerous cleavage figures indicate rapid growth in this region. The entoderm is always distinctly marked off from the mesoderm, and the author could not obtain clear proof of the entoblastic origin of the mesoderm. Even at the anterior end of the medullary groove the mesoderm is always sharply marked off from the other layers; a heaping up of the mesoderm on the entoderm as described by E. van Beneden is not apparent.

The mesoderm is characterized in well-preserved germinal areas, from eleven to thirteen days old, as a solid mass of cells, which is composed of several layers of cells under the germinal area, but consisting, outside of the latter, of but a single layer of cells.

The coelom first appears as clefts in the mesoblast outside of the germinal area, and is pushed in under the latter at a later period.

A chordal canal is always developed, and opens at a number of points into the cavity of the umbilical vesicle or yelk-sac; and opening of this canal into the anterior end of the primitive streak was not discovered. Only in an advanced embryo, with ten somites, could a slight ectodermal depression be discovered at the anterior end of the primitive streak, but this was closed below by a mass of cells.

In front of the medullary groove lies a completely closed mass of mesoblast; the interamniotic pore, described by E. van Beneden and Julin, was not observed in young germinal areas.

The anterior amniotic fold in the cat, dog, fox, and mole is not covered by mesoderm, but consists wholly of ectoderm and entoderm. It follows from this that there is found a proamnion not only in Rodents, Bats, and Marsupials, but also in Carnivora and Insectivora, from which it may be concluded that it is a structure common to the Mammalia. The significance attached to it by Van Beneden the author cannot share.

The Wolffian duct does not arise as a solid cord of cells, but, as the author observed in the Duck, as a diverticulum of the coelom; that the ectoderm takes part in the formation of the Wolffian duct was not established.

As respects the formation of the maternal placenta, the author fully confirms the statements of Bischoff, that the villi of the chorion grow into the uterine glands, destroying the latter.

PHYSIOLOGY.

Experiments with Pig Feeding.—In this Bulletin only a small part of the details of the experiment are given. A full account will appear in the Annual Report for 1886.

The experiments were undertaken—

- 1st. To produce flesh at least expense;
- 2d. To produce flesh most rapidly, expense not being considered;
- 3d. To produce most edible meat, time and expense not to be considered.

Early in March eight sow pigs were selected and put in pens as follows: Pen 1, two Berkshires and one Poland China; Pen 2, two Poland Chinas and one Berkshire; Pen 3, two Berkshires. They were not doing well when put up, and were fed until April 27 before the experiment was begun. The food from this time